

88-89
(w/ pencil 89-90)

ASHTON HATCHERY

ANNUAL REPORT

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INTRODUCTION

Ashton Hatchery is located in Fremont County, Idaho, approximately two miles (3.2 km) southwest of the small community of Ashton. Constructed in 1920, Ashton Hatchery serves as a "specialty station", rearing eight species of trout and salmon, including rainbow, cutthroat, brook trout, brown trout, golden trout, grayling, kokanee, and Atlantic salmon.

The majority of fish produced at Ashton are fry and fingerlings (1 to 6 inches) distributed throughout Idaho as part of various put-grow-and-take management programs. Catchable size (9 to 10 inches) trout are also reared at Ashton and distributed locally in waters managed on a put-and-take basis.

HATCHERY IMPROVEMENTS

Major hatchery improvements included replacing three overhead doors on the hatchery garage and one garage door on residence number one. New carpeting was installed in both residences and the pumphouse was insulated. A load of gravel was used to repair hatchery roads.

Other minor improvements consisted of cutting down two large dead trees behind residence one and installing a new hatchery

entrance sign. Wooden covers were built for the headraces, and new aluminum screens constructed for the hatchery vats. A large section of the irrigation line was repaired and willows were cut down over the spring pond. A new John Deere lawn tractor, with rear bagger attachment, was purchased for more efficient lawn maintenance.

FISH CULTURE TECHNIQUES

All fish, with the exception of grayling, were initially fed ~~BIO-PRODUCTS BIO-DIET~~ ^{size uniformity} Rangen's soft-moist diet because of the ^{palatability} of soft-moist feed. Swimup grayling were started on Bio-Products ^{HYOWA 8-400} semi-moist feed because of their small size, and then converted over to ^{BIO-DIET} Rangen's soft-moist after a few weeks. Catchables and hold-over rainbows are switched to a less expensive dry diet when they are approximately 5 inches long, while all other species remain on soft-moist feed until they are planted.

See pad Lights over the nursery vats were maintained at a ^{moderate} low intensity, because growth rates declined in brook trout, brown trout, and Henry's Lake cutthroat when they were moved to an unshaded ^{hand feeding to the automatic feeders} environment outside. ^{Human disturbance was thereby minimized and feed trickled to the fish throughout the day.} This technique is thought to improve growth rates, conversions, and feed responses, ^{lots produced} in these light-intolerant species. ^{Conversion improved in 8/11}

FISH PRODUCTION

A total of 1,094,796 fish (26,335 pounds) were produced at Ashton Hatchery this year, consisting of ^{1,730,718} 1,043,477 fingerlings ^{44,029} (13,510 pounds) and ^{1,619,323} 51,292 catchables ^{11,385} (12,825 pounds). The total number of fish produced was up ~~slightly~~ from last year and

the majority of fish requests were ~~met or~~ exceeded (Table 1).

Golden trout requests exceeded the number of eggs received (Table 2), while grayling experienced poor survival at the swimup/fry stage of development.

Ashton produced enough rainbow catchables to meet hatchery production goals, but not enough to fulfill all regional stocking requests. Therefore, ^{4,781}40,459 rainbow catchables (^{3,516}14,358 pounds) were transferred in from American Falls hatchery for redistribution by Ashton hatchery personnel (Table 3). *Erniebrook stock...*

All of the fish reared at Ashton (except kokanee) were received as eyed eggs from other hatcheries (Table 2). Kokanee were spawned at Moose Creek and the green eggs transferred back to Ashton for incubation and rearing.

A total of ^{43,574}30,813 pounds of feed were used to produce ^{44,029}26,335 pounds of gain, for an average conversion of ^{.99:1}4.47:1. Production costs (excluding capital outlay) totaled ^{132,100}\$442,200, with ^{15,585.65}\$42,344.12 spent on fish feed and the remaining ^{116,514.35}\$99,858.88 spent on general hatchery operations and personnel costs. Average cost per pound of fish produced was ^{3.08}\$4.26 (Table 4).

FISH HEALTH

Department personnel from the Eagle Fish Health Laboratory conducted fish health inspections throughout the year (Table 5).

Fish were tested for viral, bacterial, and protozoan pathogens, *and Ichthyophthirius* but bacterial gill disease was the only pathogen diagnosed. *Outbreaks of gill disease occurred in virtually every species reared, with lab results confirming cases in brown trout, kokanee, and Atlantic salmon (Table 5). Treatments with Chloramine T*

~~sulfate~~ or Chloramine-T proved successful in alleviating the gill problems as they arose.

Over 20 rainbow trout from the hatchery settling pond were sent to the Eagle lab and found to be negative for whirling disease.

Adult kokanee ^{from Moose Creek} were ~~thoroughly~~ ^{but} tested for bacterial kidney disease (BKD) this year, after destroying all of last year's stocks because of this pathogen. Fortunately, no BKD was diagnosed in the Moose Creek kokanee this year and all the eggs were retained.

SPECIAL PROJECTS

Kokanee

For the ^{first} ~~third~~ consecutive year, Ashton Hatchery personnel operated a kokanee trap on Moose Creek, a tributary to the North (Henry's) Fork Snake River. The trap was located downstream from Big Springs Road, approximately 3 miles from Mack's Inn.

Trapping began on August ¹⁰~~14~~ and continued through September ⁵~~12~~ (Figure 1). Only ¹⁶⁵~~341~~ kokanee were trapped this year, as compared to ³⁴¹~~4,000~~ last year. Island Park reservoir kokanee populations were down and consequently, those fish that returned to Moose Creek were very large. Length frequency (^{total}fork length) of trapped fish ranged from ^{12.5}~~42.7~~ inches (325 mm) to ^{31.5}~~49.3~~ inches (^{24.5}~~49.3~~ inches). Mean ^{total}fork length of females trapped was ^{18.13}~~17.2~~ inches (⁴⁶¹~~436~~ mm), while mean ^{total}fork lengths of males were slightly ^{smaller} at ^{18.5}~~17.0~~ inches (⁴⁷⁰~~434~~ mm). Most males were larger than the females, but numerous small males in the sample made the average length smaller.

Spawning operations began on August 23²² and continued until September 5, with 102 females spawned for 92,776 green eggs (Table 6). Spawning ^{occurred} began on an every-other-day basis, ^{but} ~~was switched to 2 times per week because of time constraints.~~ ^{loss of some over-ripe eggs when spawned} ^{last year.} (Several over-ripe females were observed when spawning occurred only twice per week, so next year hatchery personnel will go back to spawning every other day.) [Because of the poor kokanee run in Moose Creek, an additional 410,000 green kokanee eggs were received from Deadwood Reservoir to help meet production goals.

One half of the Kokanee ^{fingerlings} ~~fry~~ from the 1988 brood year were released in Moose Creek at the trap site. ^{and the other half at the West End hatchery in Island Park} A morphaline drip was used, ⁷ days prior to release and 7 days after to ensure that these fish would imprint on ^{the} ~~Moose~~ Creek. Fry releases occurred in ^{mid} ~~late~~ June to coincide with zooplankton blooms in Island Park Reservoir.

Brook Trout

All Temiscamie strain brook trout received an adipose clip for both strain and year class identification. To ensure desired imprinting on the Henry's Lake fish ladder, these fish were also treated with a morphaline drip for 4 days prior to release and 4 days after.

Cutthroat

A total of 125,000 cutthroat were marked with an adipose clip prior to their release in the Teton River and its tributaries. In addition, ^{25,038} ~~25,000~~ cutthroat were marked with ^{adipose} ~~an~~ right ventral fin clip and released in Spring Hollow. This work was done as part of a research project conducted by Department per-

sonnel to evaluate survival and contribution to the fishery of hatchery-raised cutthroat trout, and to evaluate stocking site suitability.

Another 50,000¹⁶⁸ cutthroat were marked with an adipose fin clip and released in the Henry's Fork near Beaver Dick campground to evaluate their survival and contribution to this fishery.

Grayling

Grayling experienced ~~poor~~^{fair} survival at Ashton this year.

Pantyhose...
Eggs arrived unpicked and started hatching ~~the following day~~^{within a few}. Possible inventory errors, ~~poor egg quality~~, cannibalism, and unseen mortality ~~also~~^{also} could have resulted in the 13.7 percent survival. (Cannibalism was observed when the grayling experienced a large size difference after a couple months on feed.)

The mean monthly length increase was 0.41 inches while the conversion was 1.85:1 (Table 7). Grayling were fed ~~Biodiet~~^{BioKyowa B-400} semi-moist starter feed for the first three weeks, then switched ~~Rangen's soft-moist feed~~^{Bio Diet semi-moist starter feed}. Kindschi and Barrows (1989) reported survival of grayling during the first 14 days on Biodiet feed was 26 percent, while grayling fed BioKyowa feed during the same period had a survival rate of 81 percent. Ashton hatchery personnel will ~~use~~^{use} BioKyowa feed ~~next year~~^{again} in an effort to increase survival.

Atlantic Salmon

A total of 29,822 atlantic salmon²⁷⁶ were received from Grand Lake Stream hatchery in Maine on February 17, 1989. ~~The eggs~~^{and reared} were in excellent condition and currently 21,419 fish are on hand

for stocking in June, 1990. Inside rearing vats were covered and fish were fed using Fiap's automatic fry feeders at the head of the vats. The fish were moved outside to a covered raceway and 2 Fiap's feeders installed on the covers. Two baffles were mounted in the raceway to facilitate cleaning and the salmon are basically maintenance-free.

Golden Trout

Golden trout are being reared at Ashton Hatchery primarily in an attempt to establish an Idaho spawning population at Baker Lake, and also for stocking several mountain lakes. A total of

⁶⁵⁴
~~1,480~~ six inch fish from the '89 brood year were planted in Baker Lake, ^{and another 17,790} ~~while 4000~~ of the '89 brood year were planted in mountain lakes (Table 2), ^{349 of these fish were hauled to Cleveland Lake in Reg. 4 from Sylvan Lake, Mont (90)} ~~Approximately 700 goldens are on hand and will~~ be stocked in Baker Lake in the spring of 1990. The mean monthly length increase for golden trout was ^{.30} .41, while the average conversion was ^{1.52} 1.29:1.

LITERATURE CITED

Kindschi, Greg A. and Frederic T. Barrows, 1989. Diets for the Intensive Production of Montana Arctic Grayling. U.S. Fish and Wildlife Service, Bozeman Fish Technology Center, 4050 Bridger Canyon Road, Bozeman, Montana 59715.

ACKNOWLEDGEMENTS

Ashton hatchery personnel wish to thank Joe Chapman and the crew at Deadwood Reservoir for taking the 410,000 kokanee eggs that were shipped to Ashton.

Table 1. Fish requested and produced, Ashton Hatchery 1988-89. ⁸⁸⁻⁹⁰

SPECIES	SIZE	NO. REQUEST	NO. PRODUCED	LBS. PRODUCED	% GOAL
Rb	2-3"	196,000	205,161	4,105	105%
K1	6-8"				
K1-2	3-4"	100,000	81,790 *	3,533	82%
BN	3-4"	90,000	91,155 *	1,681	101%
BK-C					
BK-N	3-4"	100,000	97,260	2,730	97%
C3	2-4"	205,000	297,118	1,160	145%
KE	1-2"	225,000	233,020	1,910	104%
GR	1-2"	31,250	9,661	3.9	31%
GN	1-2"	9,250	5,180 **	72.2	56%
TOTALS		956,500	1,020,345	11,865	106.6%

* additional fish transferred in from other hatcheries
 ** includes 1+ fish for Baker Lake

979 golden Sykes Lake * 2.8%
 202,250 KE-11 * 159 lb.
 15065# fingerlings
 28,821# catchables
 8,821 25.62%

Table 2. Fish or eggs received and survival to stocking,
Ashton Hatchery 1988-89.

SPEC.	STRAIN/SOURCE	DATE	RCV'D	NO. RCV'D	NO. STOCKED	% SURV.
RA(catch.)	ENNIS NFH	10/88*		39,074	35,723	91.4%
RA(fing.)	ENNIS NFH	12/88		299,472	205,161	
R1	WYO.-DANIEL	2/89		90,000	+54,295 **	66.6%
C3	HENRYS LAKE	5/89		320,019	297,118	92.8%
KE	DEADWOOD	10/89		344,674	233,020	67.6%
BK-C	HENRYS LAKE	12/88		35,961	26,377	73.3%
BK-N	HENRYS LAKE	12/88		94,560	70,883	74.9%
GR	WYO.-DANIEL	5/89		70,400	9,661	13.7%
GN	WYO.-DUBOIS	10/88*		1,279	1,180	92.2%
GN	BAKER LAKE	7/89		772	700**	90.7%
GN	WYO.-DUBOIS	7/89		4,968	4,000	80.5%
AS	MAINE	2/89		29,822	21,419**	71.6%
BN	SPR. CR.-MT	10/88		74,670	54,833	73.4%
K1-2	SKANE	1/89		150,000	66,200	44.0%
K1	ENNIS NFH	1/89		16,666	15,569	93.4%
TOTAL				1,572,337	1,096,139	69.7%

* on hand beginning of fish year

** on hand at end of fish year

Table 3. Total fish stocked, Ashton Hatchery, 1988-89.

CODE	SPECIE	SIZE (IN)	NUMBER	POUNDS
RA-1-7	ARLEE RB 87	10.5	35,723	15,572
RA-1-8	ARLEE RB 88	3.7	205,161	4,105
R-4	AM FALL RB	9.6	40,459	14,358
K1-1-9E	KAMS-9	8.4	15,590	3,250
K1-2-8S	KAMS-8	2.3	66,200	283
BN-1-8	BROWN TRT. 8	3.9	91,155	1,681
GN-1-8	GOLDEN-8	5.6	1,180	73
GN-1-9	GOLDENS-9	1.3	4,000	1.2
C3-1-9	CUTTS 89 STK	2.5	297,118	1,160
BK-1-8C	TEM BKS	4.5	26,377	733
BK-1-8N	NAT BKS	4.5	70,883	1,997
KE-1-8	KOKANEE 88 S	3.0	233,020	1,910
GR-1-9	GRAYLING 89	1.3	9,661	3.6
TOTALS			1,096,527	45,127

Table 4. Production costs by species and size, Ashton Hatchery, 1988-89.

LOT	SIZE	NO. PROD.	WEIGHT	% BUDGET	TOTAL COST	COST/LB.
AS-1-9	2.63	23,752	143.34	0.86%	\$965	\$6.73
R1-1-9W	4.42	54,398	1,873.85	7.94%	8,909	4.75
GN-1-9	1.33	894	0.63	0.01%	11	17.46
RA-1-8	3.68	205,161	4,105.0	17.76%	19,927	4.85
BK-1-8C	4.54	26,377	732.7	3.96%	4,443	6.06
BK-1-8N	4.55	70,883	1,997.0	8.96%	10,054	5.03
C3	2.54	297,118	1,160.62	5.12%	5,744	4.95
BN	3.96	54,833	1,228.0	2.30%	2,580	2.10
KE	3.01	233,020	1,910.0	17.46%	19,591	10.25
GN-1-8	5.61	1,180	73.0	3.90%	4,375	59.93
K1-2	2.27	66,200	283.0	0.73%	819	2.89
GR	1.25	9,661	2.7	0.09%	101	37.40
SUBTOTALS		1,043,477	13,509.84	69.09%	77,519	5.74
RA-1-7	10.5	35,723	10,533.0	27.86%	31,259	2.96
K1	8.4	15,569	2,292.0	3.05%	3,422	1.49
SUBTOTALS		51,292	12,825.0	30.91%	34,681	2.70
TOTALS		1,094,769	26,334.84	100.00%	\$112,200	\$4.26

Table 5. Pathology test results, Ashton Hatchery, 1989.

Species/strain	Sample	VH	VP	VE	BK	BR	BF	PW	PX	PC	BGD
	Date (89)										
Rainbow (RA)	4-24	-	-	-	-	-	-	-	x	-	x
Rainbow (RW)	9-19	x	x	x	x	-	-	x	x	x	x
Kamloops (K1)	4-25	x	x	-	x	x	x	x	x	x	x
Kamloops (K2)	3-7	x	x	x	x	x	x	x	x	x	x
Settling pond (Rbt)	7-17	x	x	x	x	x	x	-	x	x	x
Settling pond (Rbt)	8-30	x	x	x	x	x	x	-	x	x	x
Browns (Mt)	2-23	x	x	x	x	x	x	x	x	x	+
Browns (Mt)	3-7	x	x	x	x	-	-	x	x	x	x
Browns (Mt)	4-27	x	x	-	x	x	x	x	x	x	x
Kokanee (KeM)	2-23	x	x	x	x	x	x	x	x	x	+
Kokanee (KeD)	4-24	-	-	-	-	-	-	x	-	-	x
Kokanee (KeM)	8-30	-	-	x	-	x	x	x	x	x	x
Brook (BkT)	8-30	-	-	x	-	x	x	x	x	x	x
Brook (BkN)	8-30	-	-	x	-	x	x	x	x	x	x
Atlantic sal. (AS)	4-25	-	-	-	x	x	x	x	x	x	x
Atlantic sal. (AS)	7-6	x	x	x	x	x	x	x	x	x	+

Legend:

VH = IHNV, infectious hematopoietic necrosis virus
 VP = IPNV, infectious pancreatic necrosis virus
 VE = EIBS, erythrocytic inclusion body syndrome virus
 BK = bacterial kidney disease agent, Renibacterium salmoninarum
 BR = enteric redmouth bacterium, Yersinia ruckeri
 BF = bacterial furunculosis, Aeromonas salmonicida
 PW = whirling disease agent, Myxobolus (Myxosoma) cerebralis
 PX = PKX, agent of PKD, proliferative kidney disease
 PC = Ceratomyxa shasta, agent of ceratomyxosis
 BGD = Bacterial gill disease

+ = Positive results
 - = Negative results
 x = Testing/sampling not feasible

Table 6. Results of kokanee spawning operations at Moose Creek, 1989.

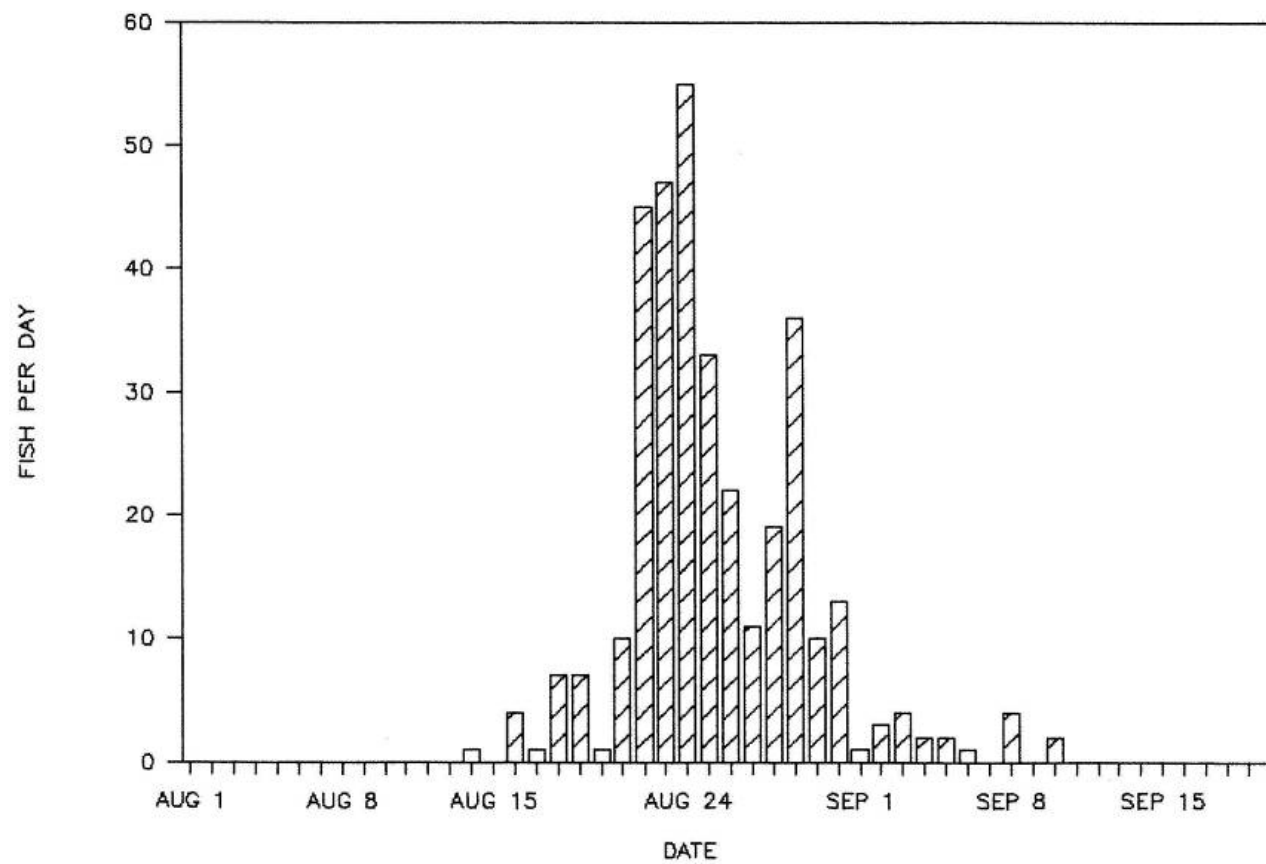
Date	Females Spawned	Eggs Collected	Average Fecundity	Percent Eye-up
8-23-89	5	4,896	979	77.1
8-24-89	2	1,450	725	78.8
8-30-89	45	44,333	986	76.7
9--1-89	17	19,271	1,134	74.2
9--5-89	25	22,826	913	76.4
TOTALS	94	92,776	987	76.3

Table 7. Comparative growth rates and feed conversions for all species reared at Ashton Hatchery, 1988-89.

SPECIES	AVE. MONTHLY LENGTH INCREASE	AVERAGE CONVERSION
Rainbow (RA7)	0.56	1.33
Rainbow (RA8)	0.60	0.94
Rainbow (Wyo)	0.54	0.78
Kamloops (K1)	0.56	1.04
Kamloops (K2)	0.43	1.14
Brown	0.44	1.32
Brook (Temis)	0.48	0.88
Brook (Nat)	0.45	0.85
Cutthroat	0.39	0.99
Golden	0.41	1.29
Grayling	0.41	1.85
Kokanee	0.34	1.35
Atlantic salmon	0.24	1.42

Figure 1.

KOKANEE RUN TIMING, 1989



ASHTON HATCHERY PRODUCTION REPORT
10/1/88-9/30/89

Catchables		Fingerlings		Fish Food	
Number	Pounds	Number	Pounds	Pounds	Costs
68733	20397	987285	10537	37802	14591.18
<hr/>					
Total Pounds	Feed Conversion	Total Cost	Cost/ 1000	Cost/ Pound	
30516	1.238	112200	106.25	3.63	
